

SDK Unit Test Procedures

Test Procedures for Driver Unit Tests

This document lists and describes the unit tests that are available for SDK drivers. More importantly, it documents the hardware and setup necessary to run the tests.

GIC

1. Run test. No setup is necessary.
2. You should see the following output on the console:

```
Starting GIC SGI test
Sending SGI
Waiting
In gic_sgi_test_handler()
SGI was handled
```

Ethernet

1. Connect Ethernet loopback cable.



1. Run test.
2. etc etc

USB Driver

Host test

1. Connect usb mouse to the OTG or Host connector (according the prompt)
2. Run test.
3. Move the mouse, the x-y position should be printed on the terminal. (The test has failed if nothing is printed.)
4. Click the left mouse button to exit.

Device test

1. Connect the OTG on the board to PC's USB port using micro-USB cable.
2. Run test.
3. The cursor should move in a circle on the PC's screen. (The test has failed if this doesn't happen.).

PCIe Driver

1. Mount a PCIe device (such as a PCIe WiFi card) to the PCIe connector.
2. Run the test.
3. The memory and IO resources should be printed on the terminal if the test is successful.

Audio Driver

1. SSI driver

- 1) Plug Headphone/Microphone to the connector.
- 2) Run the test according the prompt, the test result will be printed on the terminal.

2. ESAI driver

- 1) Mont evb board and Automotive Port Card to the ARMADILLO base board as showed in the picture.
- 2) The converting cable's two plugs were plugged into the Automotive Card's AOUT1 and AOUT2 sockets
- 3) The headphone is plugged into the converting cable's socket.



- 4) Run the test according the prompt, the test result will be printed on the terminal.

Video/Graphic Test

1. HDMI display test

1. Connected the board with HDMI cable to the TV/Monitor
2. run the test

2. IPU test

1. connected the Hannstar LVDS panel to the board, on lvds port 0.
2. run the test. it will cover total 5 tests:
 - a. display test, show a Freescale logo on the screen
 - b. combiner test. background and foreground shown together
 - c. rotate test. the image on screen will rotate in clockwise 90 degree every time
 - d. resize test. resizing the image shown on screen
 - e. csc test. it means color space conversion. the test will convert the image in RGB to YUV and then change back

3. VPU test

1. **decoder test**
 - a. create a seperate partition on the SD card and format it to be fat format
 - b. create a folder named "indir"
 - c. copy two h264 video clips onto the partition, change the name to clip_1.264 and indir/clip_2.264
 - d. put the SD card into slot3
 - e. run the decoder test. select display devices and decoder instance(dual decoder or single decoder)
 - f. choose the decode type, endless loop or play to end of file4.
 - g. choose to enable or disable the VDOA feature. VDOA is a designate DMA block for video output stream tranfer, it will save the bandwidth for video enc/dec
2. **encoder test**
 - a. create a seperate partition on the SD card and format it to be fat format
 - b. create a folder named "indir"
 - c. copy the raw YUV stream onto the directory and name it as raw_nv12.yuv. the stream should be in fourcc NV12 format
 - d. put the SD card into slot3
 - e. run the test. the encode format is avc(h264) and the output stream will be stored in DDR. you can run the decoder again to check

it.

4. VDOA test.

VDOA test is embedded in VPU decoder test, see step g.

5. MIPI test

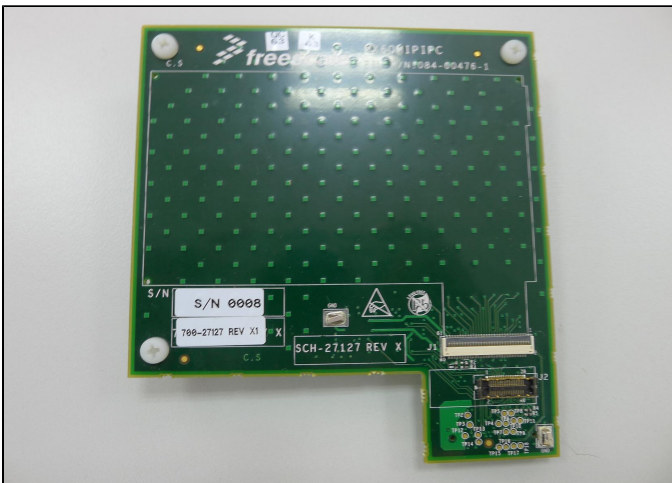
1) MIPI dsi test

1. connect the MIPI DSI expansion board to the main board.
2. run the test, you should see the logo on the screen.



2) MIPI csi test

1. connect the MIPI CSI expansion board to the main board.
2. connect the Hannstar LVDS panel to the board, on lvds port 0
3. run the test, you should see the camera preview image on the screen.



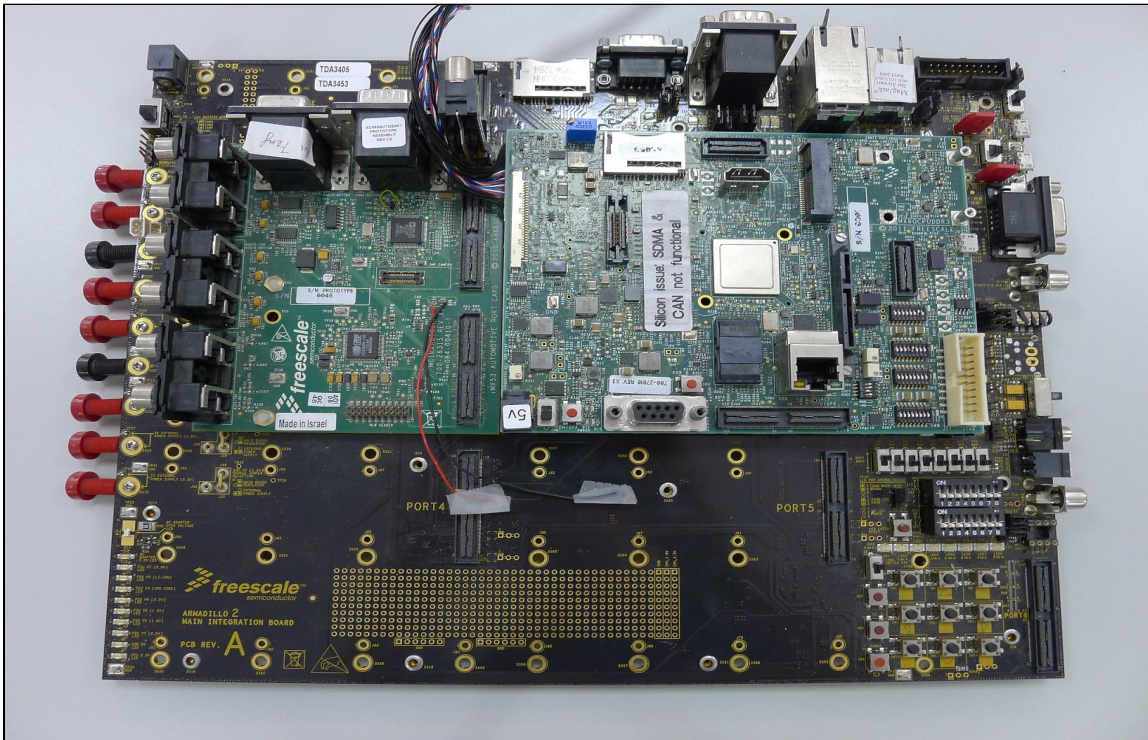
5. Camera test

1) Parallel camera test

1. connect the camera module onto smart device board/mx6sl EVK board, on PARALLEL port.
2. connect the Hannstar LVDS panel to the board, on lvds port 0
3. run the test. you should see the preview image.

1) ADV7180 tv-in test

1. connect i.MX53 AUTOMOTIVE PORT CARD to ARMANILLO2 board, on PORT2 and PORT3. And connect DVD signal input through Y/Pb/Pr port.
2. connect main board (CPU card) to ARMANILLO2 board.
3. connect the Hannstar LVDS panel to the main board, on lvds port 0
4. turn on DVD.
5. run the test. you should see the DVD images on lvds panel.



6. LCDC test

1. connect LCDC panel MX28LCD/MX51LCD to mx6sl EVK board, on LCDC Expansion Port.
2. run the test, a Freescale logo displays on the screen.

7. SPDC/EPDC test

1. put the EPDC/SPDC DC3 board on the main cpu board
2. run the test and you should see a freescale logo on the screen

note that EPDC is for mx6dl/mx6sl, and SPDC is for mx6sl only.

8. GPU demo

1. connect the LVDS panel on to the LVDS port0
2. run the GPU demo, you will see a sphere rotating on the screen

Sata Test

1. connect the sata card to the main cpu board
2. run the test, the log shown on terminal will indicate the read/write result.



uSDHC Test

1. Insert SD/MMC/eMMC card to the slot prompted.
2. Select the test to run.

Test menu on i.MX6dq smart_device and i.MX6sl EVK:

```
---- Running uSDHC test, type 'x' to exit.  
Make sure to insert an MMC/SD card into SD slot #3  
Please select test:  
0 - usdhc polling IO  
1 - usdhc ADMA polling  
2 - usdhc ADMA interrupt  
3 - **emmc special  
x - to exit.
```

Test output for choosing 0 - usdhc polling IO:

1. Init card.
2. Card -> TMP.
3. SRC -> Card.
4. Card -> DST.
5. TMP -> Card.
6. Compare SRC & DST.

usdhc polling IO test PASSED.

Test output for choosing 1 - usdhc ADMA polling:

1. Init card.
2. Card -> TMP.
3. SRC -> Card.
4. Card -> DST.
5. TMP -> Card.
6. Compare SRC & DST.

usdhc ADMA polling test PASSED.

Test output for choosing 2 - usdhc ADMA interrupt:

1. Init card.
 2. Card -> TMP.
 3. SRC -> Card.
 4. Card -> DST.
 5. TMP -> Card.
 6. Compare SRC & DST.
- usdhc ADMA interrupt test PASSED.

Test output for choosing 3 - **emmc special

```
Initializing eMMC chip.  
Send CMD1 failed.  
Initialize eMMC failed.
```

**emmc special test FAILED.

Note: If run emmc test, please make sure insert eMMC card.

PMU

Run test. No setup is necessary.

Output on the TeraTerm console (mx6sl EVK board):

~~PMU test~~

Choose an option:

- p - Print regulator voltages
- i - Print detailed info for one regulator
- v - Set voltage for a regulator
- x - Exit test

```
> p
REG_1P1 = 1100 mV
REG_2P5 = 2400 mV
REG_3P0 = 3000 mV
REG_ARM = 1125 mV
REG_PU = 1125 mV
REG_SOC = 1125 mV
```

```
> i
```

Choose a regulator:

- 1 - REG_1P1
- 2 - REG_2P5
- 3 - REG_3P0
- 4 - REG_ARM
- 5 - REG_PU
- 6 - REG_SOC
- x - Return to main menu

```
> 1
```

```
REG_1P1 state:
output = 1100 mV
min output = 900 mV
max output = 1300 mV
brownout level = 850 mV
min brownout level = 850 mV
max brownout level = 1025 mV
enabled = yes
brownout enabled = no
ilimit bypassed = no
pulldown enabled = no
regulator ok = yes
in brownout = no
brownout handler = 0x00000000
safety override enable = no
```